IN THE CLAIMS:

Please amend claims 1, 39, and 77 as follows.

1. (Currently Amended) An apparatus for controlling ~~the~~ a temperature of an exhaust gas sensor disposed in an exhaust passage of an internal combustion engine and having an active element for contacting an exhaust gas flowing through the exhaust passage and a heater for heating the active element, characterized by comprising:

means for sequentially acquiring element temperature data representing the temperature of said active element, means for sequentially acquiring heater temperature data representing the temperature of said heater, and heater control means for sequentially generating a control input which defines an amount of heat generating energy supplied to said heater so as to equalize the temperature of the active element represented by said element temperature data to a predetermined target temperature, and controlling the heater depending on the control input, and characterized in that said control input generated by said heater control means includes at least an input component depending on ~~the~~ a difference between the temperature of the active element represented by said element temperature data and said target temperature and an input component depending on the temperature of the heater represented by said heater temperature data.

2. (Original) An apparatus for controlling the temperature of an exhaust gas sensor according to claim 1, characterized by comprising means for sequentially acquiring exhaust gas temperature data representing the temperature of said exhaust gas, and characterized in that said control input generated by said heater control means includes an input component depending on the temperature of the exhaust gas represented by said exhaust gas temperature data.

3. (Original) An apparatus for controlling the temperature of an exhaust gas sensor according to claim 1, characterized in that said control input generated by said heater control means includes an input component depending on said target temperature.

4. (Original) An apparatus for controlling the temperature of an exhaust gas sensor according to claim 1, characterized in that said control input generated by said heater control means includes an input component depending on the temperature of the active element represented by said element temperature data.

Claims 5-38 (withdrawn).

39. (Currently Amended) A method of controlling ~~the~~ a temperature of an exhaust gas sensor disposed in an exhaust passage of an internal combustion engine and having an active element for contacting an exhaust gas flowing through the exhaust passage and a heater for heating the active element, characterized by comprising the steps of:

sequentially acquiring element temperature data representing the temperature of said active element and heater temperature data representing the temperature of said heater, sequentially generating a control input which defines an amount of heat generating energy supplied to said heater so as to equalize the temperature of the active element represented by said element temperature data to a predetermined target temperature, and controlling the heater depending on the control input, and characterized in that when said control input is generated, said control input is generated so as to include at least an input component depending on ~~the~~ a difference between the temperature of the active element represented by said element temperature data and said target temperature and an input component depending on the temperature of the heater represented by said heater temperature data.

40. (Original) A method of controlling the temperature of an exhaust gas sensor according to claim 39, further characterized by comprising the step of sequentially acquiring exhaust gas temperature data representing the temperature of said exhaust gas,

and characterized in that when said control input is generated, said control input is generated so as to further include an input component depending on the temperature of the exhaust gas represented by said exhaust gas temperature data.

41. (Original) A method of controlling the temperature of an exhaust gas sensor according to claim 39, characterized in that when said control input is generated, said control input is generated so as to further include an input component depending on said target temperature.

42. (Original) A method of controlling the temperature of an exhaust gas sensor according to claim 39, characterized in that when said control input is generated, said control input is generated so as to further include an input component depending on the temperature of the active element represented by said element temperature data.

Claims 43-76 (Withdrawn).

77. (Currently Amended) A recording medium readable by a computer and storing a temperature control program for enabling the computer to perform a process of controlling ~~the~~ a temperature of an active element of an exhaust gas sensor disposed in an

exhaust passage of an internal combustion engine and having the active element for contacting an exhaust gas flowing through the exhaust passage and a heater for heating the active element, characterized in that

said temperature control program includes a program for enabling said computer to perform a process of sequentially acquiring element temperature data representing the temperature of said active element and heater temperature data representing the temperature of said heater, a control input generating program for enabling said computer to perform a process of sequentially generating a control input which defines an amount of heat generating energy supplied to said heater so as to equalize the temperature of the active element represented by said element temperature data to a predetermined target temperature, and a program for enabling said computer to perform a process of controlling the heater depending on the control input, wherein said control input generating program has an algorithm for enabling said computer to generate said control input so as to include at least an input component depending on ~~the~~ a difference between the temperature of the active element represented by said element temperature data and said target temperature and an input component depending on the temperature of the heater represented by said heater temperature data.

78. (Original) A recording medium storing a temperature control program for an exhaust gas sensor according to claim 77, characterized in that said temperature control program further includes a program for enabling said computer to perform a process of sequentially acquiring exhaust gas temperature data representing the temperature of said exhaust gas, wherein said control input generating program has an algorithm for enabling said computer to generate said control input so as to further include an input component depending on the temperature of the exhaust gas represented by said exhaust gas temperature data.

79. (Original) A recording medium storing a temperature control program for an exhaust gas sensor according to claim 77, characterized in that said control input generating program has an algorithm for enabling said computer to generate said control input so as to further include an input component depending on said target temperature.

80. (Original) A recording medium storing a temperature control program for an exhaust gas sensor according to claim 77, characterized in that said control input generating program has an algorithm for enabling said computer to generate said control input so as to further include an input component depending on the temperature of the active element represented by said element temperature data.

Claims 81-114 (Withdrawn).